REMARKS

In the Office Action dated May 28, 2004, claims 44-99 are pending, claims 58, 59, 71, 82-84, 86 and 89-98 having been withdrawn from consideration. Claims 44-57, 60, 64-70, 72-75, 78-81, 85, 87, 88 and 99 are rejected and claims 61-63, 76 and 77 are objected to. Applicants appreciate the acknowledgement of patentable subject matter, at least in claims 61-63, 76 and 77.

The specification has been amended to eliminate reference to claims and replace the references with language from the original claims. No new matter is added.

A new Abstract is submitted deleting the reference to Figure 3.

If the Examiner desires, a substitute specification will be submitted making the above amendments to the specification and adding subheadings.

Claims 44, 45, 48-57, 60, 64-66, 69, 70, 72-75, 80, 81, 85, 87, 88 and 99 are rejected under 35 U.S.C. §103(a) over O'Connor (U.S. 5,846,370) in combination with any one of Dickens, Jr. et al. (U.S. 5,304,329), Caldarise (U.S. 5,662,158) or Russell et al (U.S. 6,007,318). Applicants strongly disagree.

The present invention is directed to a process for producing a three-dimensional object by providing controlled removal of non-solidified powder material. The meaning of "controllably removing" or "controlled removal" is that the removal is performed in a manner in which no process steps have to be performed manually and the removal can take place at a predetermined time in a predetermined fashion. The user does not have to wait for the right moment to remove the non-solidified powder material because this is performed in a controlled manner.

This feature of controllably removing and controlled removal, respectively, serves

to provide a process and a device with which the overall production process may be simplified, automated and/or shortened and the precision during the production of the three-dimensional object is improved. Particularly, this feature serves to automate and simplify the production process.

With this feature of a controlled removal, the user does not necessarily have be at the device after forming the three-dimensional object and the removal of the non-solidified powder can be performed in an automated manner. Furthermore, the overall production process can be shortened, since a predetermined cooling-period can be used that is optimized for the type of three-dimensional object to be produced and for the powder used. When the powder is controllably removed, this can be done very carefully and therefore the precision during the production is improved.

O'Connor ***fails*** to teach or suggest controllably removing non-solidified powder material, as admitted by the Examiner. O'Connor merely discloses "that the prototype can be readily lifted from the remaining powder at the end of the process cycle" (col. 4, 1. 35-38).

Dickens, Jr. et al. also ***fail*** to teach or suggest controllably removing or controlled removal of non-solidified powder material, contrary to the opinion of the Examiner. In column 4, lines 26 to 28, Dickens mentions just recovering and recycling of unsintered powder; there is not even a hint of a suggestion that removing of powder should be done controllably or that a controlled removal is performed.

Caldarise also ***fails*** to teach or suggest controllably removing or controlled removal of non-solidified powder material. In column 9, lines 45 to 51 Caldarise only describes that non-solidified powder is removed and that this can be done by shaking or immersing in a bath or solvent. These process steps are known to the person skilled in the art and are usually performed manually. There is not even a hint of a suggestion that this should be performed controllably or controlled by a device.

Russell, too, ***fails*** to teach or suggest controllably removing or controlled removal of non-solidified powder material. In column 4, lines 48 to 59 Russell discloses a process and a device, respectively, for reducing the amount of airborne powder. A device is disclosed that can be used as a miniature vacuum cleaner to remove excess powder. This device has to be manually switched on and manipulated by the user (col. 4, 1. 48-59). Not even a hint of a suggestion is given to perform a controlled removal or to controllably remove unsintered powder.

Thus, it is not seen how the present invention would have been obvious to one of ordinary skill in the art in view of any combination of O'Connor, Dickens, Jr. et al., Caldarise and Russell et al.

Claims 46, 47 and 78 are rejected under 35 U.S.C. §103(a) over O'Connor (U.S. 5,846,370) in combination with any one of Dickens, Jr. et al. (U.S. 5,304,329), Caldarise (U.S. 5,662,158) or Russell et al (U.S. 6,007,318), and further in view of Newell et al. (U.S. 5,932,055). O'Connor, Dickens, Jr. et al., Caldarise and Russell et al. are discussed above. Newell et al. fails to make up for the deficiencies in O'Connor, Dickens, Jr. et al., Caldarise and Russell et al. Newell et al. merely discuss generally that powder can be removed by a brush or compressed air (col. 2, lines 20-24) or that powder is brushed off before the parts are pyrolized (col. 9, lines 39-41). Thus, there is not even a hint of a suggestion that removal of powdered material should be performed controllably or controlled by a device.

Claims 67, 68 and 69 are rejected under 35 U.S.C. §103(a) over O'Connor (U.S. 5,846,370) in combination with any one of Dickens, Jr. et al. (U.S. 5,304,329), Caldarise (U.S. 5,662,158) or Russell et al (U.S. 6,007,318), and further in view of Grube et al. (WO 92/08592). O'Connor, Dickens, Jr. et al., Caldarise and Russell et al. are discussed above. Grube et al. fails to make up for the deficiencies in O'Connor, Dickens, Jr. et al., Caldarise and Russell et al. Grube et al. also fail to teach or suggest that removal of powdered material should be performed controllably or controlled by a device.

Thus, it is not seen how the present invention would have been obvious to one of ordinary skill in the art in view of any combination of O'Connor, Dickens, Jr. et al., Caldarise, Russell et al., Newell et al. and Grube et al.

In view of the discussion above, it is respectfully submitted that the subject application is in a condition for allowance. Early and favorable action is requested.

If for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, the Commissioner is hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,

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